

FIREHOLE RIVER BRIDGE  
Yellowstone Roads and Bridges  
Spanning Firehole River on  
Fountain Freight Road  
Yellowstone National Park  
Teton County  
Wyoming

HAER No. WY-27

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WYO  
20-YELNAP,  
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WRITTEN HISTORICAL & DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
U.S. Department of the Interior  
P.O. Box 27377  
Washington, DC 20013-7127

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National Park Service  
U.S. Department of the Interior  
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HISTORIC AMERICAN ENGINEERING RECORD

FIREHOLE RIVER BRIDGE

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**Location:** Spanning Firehole River at the south end of Fountain Freight Road, Yellowstone National Park, Teton County, Wyoming.  
UTM: Lower Geyser Basin, WY, Quad. 12/413360/4928970

**Date of Construction:** 1911

**Owner:** Yellowstone National Park, National Park Service

**Historic Use:** Vehicular bridge

**Present Use:** Limited access vehicular and trail bridge (NPS vehicles only)

**Fabricator:** Minneapolis Steel and Machinery Co., Minneapolis, Minnesota

**Builder:** U.S. Army Corps of Engineers

**Significance:** This bridge is one of two remaining Army Corps of Engineers bridges in Yellowstone National Park. It represents the significant role that the Corps of Engineers played in the early years of road construction in the park.

**Project Information:** Documentation of Firehole River Bridge is part of the Yellowstone Roads and Bridges Recording Project, conducted during the summer of 1989 by the Historic American Engineering Record, a division of the National Park Service, under the co-sponsorship of Yellowstone National Park, the NPS Roads and Bridges Program, and the NPS Rocky Mountain Regional Office, Denver. Historical research and written narrative by Mary Shivers Culpin, Historian, NPS Rocky Mountain Regional Office. Engineering description by Stephen M. Varner, Virginia Polytechnic Institute. Edited and transmitted by Lola Bennett, HAER Historian, 1993.

## DESIGN AND CONSTRUCTION OF FIREHOLE RIVER BRIDGE

Firehole River Bridge crosses Firehole River at the south end of Fountain Freight Road. The bridge was constructed by the U.S. Army Corps of Engineers in their second phase of bridge construction. The Army Corps of Engineers began construction of the roads and bridges in Yellowstone National Park in 1883 and continued that work until 1918, when the responsibility was assumed by the National Park Service.

In 1909 an Army bridge inspection report stated "... all of these wooden bridges were built in the earlier days [1880s-1890s] of road construction in the Park, the material being pine in all cases. The life of pine in that altitude is not to exceed 12 to 15 years if clear from earth and moisture, and considerably less if in contact with earth and moisture. Therefore, most of the structures now in the Park have reached the limit of safety for use as bridges."<sup>1</sup>

The first four steel bridges in the park were constructed in 1901, followed by nine during 1903-04, four in 1910, and three in 1911. While no documentation on this particular bridge has been found, another 65-foot span steel bridge was purchased from the Minneapolis Steel and Machinery Company of Minneapolis in 1911. It is probable that this is the same bridge, relocated in 1925 from its original site spanning Gibbon River.

## DESCRIPTION

The bridge is a 67-foot steel Pratt pony truss with concrete abutments. The deck width is 16' and the bridge roadway, curb-to-curb, is also 16' wide.<sup>2</sup> There are seven stringers supported by floor beams. The outside stringers are 7"x2½" channels which cup inward. The middle stringer is made of two of these channels back to back forming an I-shape. The remaining stringers are 7-inch I-beams. The floor beams which run transversely under the stringers are I-beams with 5½"x¾" flanges and 13½"x½" webs. Cross frames are in the form of diagonal tension rods at the bottom of the floor beams.

The skew of this bridge is 45 degrees. There are two identical trusses in this bridge. There are five panels of 13'-3" except for the middle panel which is 13'-6". The bottom chord is made of two 3"x¾" I-bars in the middle span for each truss. The rest of the spans have two 2½"x3"x¾" angles for each truss making up their bottom chords. The top chord consists of two 6"x½" channels with a 10"x½" top plate. The top chord is horizontal over the middle three panels and forms inclined end posts at the portal ends. The diagonal members in the second and fourth panels consist of two 2"x¾" bars for each truss. These diagonals span from the upper outer panel points to the lower inner panel points. The middle truss panel has two diagonals on each truss. These diagonals consist of two ¾"x¾" bars. The posts of the trusses consist of four 2"x2"x½" angles each. There are eight posts on the two trusses. In general, the posts occupy the outer positions in the pinned joint. The diagonal bars are in the middle positions in the pinned joint while the top and bottom chords occupy the inside position.<sup>3</sup>

The transverse deck planks are 3"x12". On top of these planks, 2"x12" planks run longitudinally. They create two 3-foot wheel strips, 4'-1" in from one side and 3'-11" in from the other side. The lattice railing is 3'-2" high. At the intersection of the lattice members are round cast steel medallions.<sup>4</sup>

Between 1972 and 1976, 2.2 miles of the old Fountain Freight Road was graded with base course, and two miles of the road obliterated, scarified and graded for winter use. In 1985 the wooden deck was removed from the bridge and replaced with CCA-treated bridge plank. The bridge is now "primarily used as a trail; however, vehicles travel over it to collect garbage, for emergency access, and as a snowmobile route in winter."<sup>5</sup>

**ENDNOTES**

1. Captain Wildurr Willing, "Report of Inspection of Bridges in the Yellowstone National Park, made 24, 25 and 26 September 1909, with Recommendations, by Request of Captain Wildurr Willing, Corps of Engineers, U.S.A."

2. Plans for Proposed Bridge No. 4 over Gibbon River, 9 miles south of Norris, Yellowstone National Park, 1911. "Safety Inspection Report, Firehole River Bridge Over the Firehole River, July 11, 1985," Western District Federal Division, Federal Highway Administration, Department of Transportation.

3. "Safety Inspection Report, Firehole River Bridge over Firehole River."

4. Ibid.

5. Real Property Record for Fountain Freight Road. National Park Service, Rocky Mountain Regional Office.

**BIBLIOGRAPHY**

**PUBLIC DOCUMENTS**

These documents include reports printed by the Government Printing Office which originated in Executive Branch and in the Congress, reports and other documents originating in different government agencies, but not published by the Government Printing Office.

**UNPUBLISHED PUBLIC DOCUMENTS**

Plans for Proposed Bridge No. 4 over Gibbon River, 9 miles south of Norris, Yellowstone National Park, 1911.

"Safety Inspection Report, Firehole River Bridge over Firehole River, July 11, 1985." Western District Federal Division, Federal Highway Administration. Department of Transportation.

Willing, Captain Wildurr. "Report of Inspection of Bridges in the Yellowstone National Park, made September 24, 25, 26, 1990, with Recommendations, by Request of Captain Wildurr Willing, Corps of Engineers, U.S.A."

ADDENDUM TO:  
FIREHOLE RIVER BRIDGE  
Yellowstone National Park  
Spanning Firehole River at Fountain Freight Road  
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## FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001